

IN THE CLAIMS:

Amend claims 1-3, 7, 8 and 17 as shown in the following listing of claims, which replaces all previous listings and versions of claims.

1. (currently amended) An optical switch comprising:

at least first, second, and third optical fibers disposed generally parallel to each other and spaced at non-equal intervals in a direction generally perpendicular to an optical axis of each of the optical fibers, the optical fibers and having tip portions disposed approximately along a straight line extending in a direction generally perpendicular to the optical axis of each of the optical fibers;

first guiding means non-movably mounted in front of the tip portions of the optical fibers for guiding a beam of light emitted from the first optical fiber to the second optical fiber along a first optical path disposed between the tip portion of the first optical fiber and the tip portion of the second optical fiber; and

second guiding means mounted for undergoing movement to a position in front of the tip portions of the optical fibers for guiding the beam emitted from the first optical fiber to the third optical fiber along a second optical path

disposed between the tip portion of the first optical fiber and the tip portion of the third optical fiber so that a length of the second optical path is substantially equal to a length of the first optical path.

2. (currently amended) An optical switch according to claim 1; ~~wherein the plurality of optical fibers further comprises comprising~~ at least a fourth optical fiber having a tip portion disposed approximately along a the straight line; and further comprising third guiding means non-movably mounted in front of the tip portions of the optical fibers for guiding the beam emitted from the fourth optical fiber to the third optical fiber, and fourth guiding means mounted for undergoing movement to a position in front of the tip portions of the optical fibers for guiding ~~the~~ a beam emitted from the fourth optical fiber to the second optical fiber.

3. (currently amended) An optical switch according to claim 2; wherein the third guiding means guides the beam emitted from the fourth optical fiber to the third optical fiber along a third optical path disposed between the tip portion of the fourth optical fiber and the tip portion of the third optical fiber, and the fourth guiding means guides the beam emitted from the fourth optical fiber to the second optical fiber along a fourth optical path disposed between the

tip portion of the fourth optical fiber and the tip portion of the second optical fiber; and wherein a length of at least one of the third optical path and the fourth optical path is substantially equal to a the length of each of the first and second optical paths.

4. (previously presented) An optical switch according to claim 3; wherein the optical switch comprises an optical communication component of an add-drop system where the first optical fiber is set to IN, one of the second optical fiber and the third optical fiber is set to OUT, the other of the second optical fiber and the third optical fiber is set to DROP, and the fourth optical fiber is set to ADD.

5. (previously presented) An optical switch according to claim 4; wherein only one of the third optical path when the third optical fiber is set to DROP and the fourth optical path when the second optical fiber is set to DROP has a length which is different from the other of the optical paths.

6. (previously presented) An optical switch according to claim 4; wherein the third optical path when the third optical fiber is set to DROP or the fourth optical path when the second optical fiber is set to DROP is interrupted.

7. (currently amended) An optical switch comprising:

at least first, second and third optical fibers disposed generally parallel to each other and spaced at non-equal intervals and having tip portions disposed approximately along a straight line extending in a direction generally perpendicular to the optical axis of each of the optical fibers;

first guiding means non-movably mounted in front of the tip portions of the optical fibers for guiding a beam of light emitted from the first optical fiber to the second optical fiber along a first optical path disposed between the tip portion of the first optical fiber and the tip portion of the second optical fiber;

second guiding means mounted for undergoing movement to a position in front of the tip portions of the optical fibers for guiding the beam emitted from the first optical fiber to the third optical fiber along a second optical path disposed between the tip portion of the first optical fiber and the tip portion of the third optical fiber so that a length of the second optical path is substantially equal to a length of the first optical path;

at least a fourth optical fiber having a tip portion disposed approximately along the straight line;

third guiding means non-movably mounted in front of the tip portions of the optical fibers for guiding the beam emitted from the fourth optical fiber to the third optical fiber; and

fourth guiding means mounted for undergoing movement to a position in front of the tip portions of the optical fibers for guiding a beam emitted from the fourth optical fiber to the second optical fiber;

wherein the third guiding means guides the beam emitted from the fourth optical fiber to the third optical fiber along a third optical path disposed between the tip portion of the fourth optical fiber and the tip portion of the third optical fiber, and the fourth guiding means guides the beam emitted from the fourth optical fiber to the second optical fiber along a fourth optical path disposed between the tip portion of the fourth optical fiber and the tip portion of the second optical fiber; and wherein a length of at least one of the third optical path and the fourth optical path is substantially equal to the length of each of the first and second optical paths;

~~according to claim 3; wherein~~ the first and third guiding means comprise a total of at least four mirrors; and

wherein the second and fourth guiding means comprise a total of at least four mirrors mounted for simultaneously undergoing movement to a position in front of the tip portions of the optical fibers.

8. (currently amended) An optical switch comprising:

at least first, second and third optical fibers disposed generally parallel to each other and spaced at non-equal intervals and having tip portions disposed approximately along a straight line extending in a direction generally perpendicular to the optical axis of each of the optical fibers;

first guiding means non-movably mounted in front of the tip portions of the optical fibers for guiding a beam of light emitted from the first optical fiber to the second optical fiber along a first optical path disposed between the tip portion of the first optical fiber and the tip portion of the second optical fiber;

second guiding means mounted for undergoing movement to a position in front of the tip portions of the optical fibers for guiding the beam emitted from the first optical fiber to the third optical fiber along a second optical path disposed between the tip portion of the first optical fiber and the tip portion of the third optical fiber so that a

length of the second optical path is substantially equal to a length of the first optical path;

at least a fourth optical fiber having a tip portion disposed approximately along the straight line;

third guiding means non-movably mounted in front of the tip portions of the optical fibers for guiding the beam emitted from the fourth optical fiber to the third optical fiber; and

fourth guiding means mounted for undergoing movement to a position in front of the tip portions of the optical fibers for guiding a beam emitted from the fourth optical fiber to the second optical fiber;

wherein the third guiding means guides the beam emitted from the fourth optical fiber to the third optical fiber along a third optical path disposed between the tip portion of the fourth optical fiber and the tip portion of the third optical fiber, and the fourth guiding means guides the beam emitted from the fourth optical fiber to the second optical fiber along a fourth optical path disposed between the tip portion of the fourth optical fiber and the tip portion of the second optical fiber; and wherein a length of at least one of the third optical path and the fourth optical path is substantially equal to the length of each of the first and second optical paths;

~~according to claim 3; wherein~~ wherein the first and third guiding means comprise a total of at least four mirrors; and

wherein the second and fourth guiding means comprise a total of two mirrors mounted for simultaneously undergoing movement to a position in front of the tip portions of the optical fibers to cooperate with at least one of the mirrors of the first and third guiding means for guiding the beam emitted from the first optical fiber and the beam emitted from the fourth optical fiber along the second optical path and the fourth optical path, respectively.

9. (previously presented) An optical switch according to claim 7; wherein each mirror of the first, second, third and fourth guiding means reflects only one beam.

10. (previously presented) An optical switch according to claim 8; wherein each mirror of the first, second, third and fourth guiding means reflects only one beam.

11. (previously presented) An optical switch according to claim 9; wherein each mirror of the second and fourth guiding means has a diameter which is three times or less than a diameter of the beam emitted from the first optical fiber and a diameter of the beam emitted from the fourth optical fiber.

12. (previously presented) An optical switch according to claim 10; wherein each mirror of the second and fourth guiding means has a diameter which is three times or less than a diameter of the beam emitted from the first optical fiber and a diameter of the beam emitted from the fourth optical fiber.

13. (previously presented) An optical switch according to claim 1; wherein the first guiding means comprises a plurality of first mirrors disposed at an angle of 45 degrees with respect to an optical axis of the optical fibers; and wherein the second guiding means comprises a plurality of second mirrors disposed at an angle of 45 degrees with respect to the optical axis of the optical fibers when the second mirrors are disposed at the position in front of the tip portions of the optical fibers.

14. (previously presented) An optical switch according to claim 1; wherein each of the first and second guiding means comprises a plurality of mirrors; and further comprising a lens functional part disposed between at least one of the optical fibers and the mirrors for converging the beam emitted from the at least one of the optical fibers.

15. (previously presented) An optical switch according to claim 1; wherein the second guiding means comprises a plurality of mirrors; and further comprising control means for controlling movement of the mirrors to adjust the direction of the beam emitted from the first optical fiber to the third optical fiber along the second optical path.

16. (previously presented) An optical switch device comprising: a plurality of optical switch devices according to claim 1 disposed relative to one another so that an optical axis of each of the optical fibers of the optical switch devices are disposed generally parallel to one another.

17. (currently amended) An optical switch comprising:

a main body;
at least first, second and third optical fibers mounted on the main body and disposed generally parallel to each other with tip portions of the optical fibers disposed approximately along a straight line extending in a direction generally perpendicular to an optical axis of each of the optical fibers;

first guiding means integrally mounted on the main body for intersecting a beam of light emitted from the first

optical fiber and for guiding the beam to the second optical fiber along a first optical path having a preselected length; and

second guiding means mounted on the main body for undergoing movement relative to the main body to intersect the beam emitted from the first optical fiber and guide the beam to the third optical fiber along a second optical path having substantially the preselected length.

18. (previously presented) An optical switch according to claim 17; wherein each of the first and second guiding means comprises a plurality of mirrors.

19. (previously presented) An optical switch according to claim 17; further comprising a plurality of grooves formed in the main body; and wherein each of the first, second, and third optical fibers is mounted in a respective one of the grooves.

20. (previously presented) An optical switch according to claim 17; wherein each of the first, second, and third optical fibers has a front part having the tip portion; and wherein the front parts of the first, second, and third optical fibers are disposed generally parallel to one another.